In The Claims

Please cancel claim 5 without prejudice to or disclaimer of the subject matter contained therein.

Please amend the claims as follows:

1. (Amended) A method for recovering a compressed motion picture, comprising the steps of:

defining a cost function having a smoothing degree of an image and a reliability with respect to an original image in consideration of the directional characteristics of the pixels which will be recovered and a plurality of pixels near the pixels which will be recovered;

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obtaining a regularization parameter variable having a weight value of the reliability with respect to the original image based on a cost function; and

approximating the regularization parameter variable using the compressed pixel and obtaining a pixel which will be recovered,

wherein said regularization parameter variable is a weight value with respect to reliability and is determined based on a difference between the original pixel and the compressed pixel and a difference value between the original pixel and the neighboring pixel.

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5. ~~6.~~ (Amended) The method of claim 1, wherein said difference value between the original pixel and the compressed pixel is approximated based on a quantizing maximum difference, and a difference value between the original pixel and the neighboring pixel is approximated based on a difference value between the compressed pixel and the neighboring compressed pixel.

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6. ~~7.~~ (Amended) The method of claim 1, after the step for obtaining the recovering pixel, further comprising a step for performing a DCT with respect to the recovering pixels, projecting the recovering pixels in accordance with pixel value which will be processed, and performing a reverse DCT with respect to the projected images, and in said projecting step, a recovering image is projected at a subset for setting a range of DCT coefficients of a compressed image, and a maximum quantizing difference of the macro block is included in the subset.

7. ~~8.~~ (Amended) The method of claim 1, wherein in said step for approximating the regularization parameter variable, a quantizing maximum difference of a macro block unit is a quantizing variable, a quantizing difference is uniformly allocated to each pixel in a corresponding macro block, and the non-uniform values between two pixels of the original image are statistically ~~similar to the non-uniform values between two pixels of the compressed image.~~

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10. ~~11~~. (Amended) The method of claim 8 ~~9~~, wherein in said step for approximating the regularization parameter variable, a quantizing difference of each pixel is set based on a function of a quantizing variable set by the unit of a macro block, and a weight value is added to the pixel based on the pixel position.

11. ~~12~~. (Amended) In a method for recovering a compressed motion image for processing an original pixel f(i,j) based on a DCT by the unit of macro blocks of a MxM size, quantizing the DCT-processed coefficient, transmitting together with motion vector information, reversely quantizing and reversely DCT-processing the compressed pixel g(i,j) and recovering an image similar to the original image, a method for recovering a compressed motion picture, comprising the steps of:

defining a cost function M(i,j) having a smoothing degree of an image and a reliability with respect to an original image as a pixel unit in consideration of a directional characteristic between the pixels which will be recovered and the pixels neighboring the pixels which will be recovered;

adaptively searching a regularization parameter variable having a weight of a reliability with respect to the original image from the cost function M(i,j); and

obtaining a projected pixel P(F(u,v)) using a projection method for mapping the pixels which will be recovered in accordance with a range value of

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the pixels which will be recovered,

wherein said regularization parameter variable is a weight value with respect to reliability and is determined based on a difference between the original pixel and the compressed pixel and a difference value between the ~~original pixel and the neighboring pixel.~~

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13. ~~14.~~ (Amended) The method of claim 12 ~~13~~, wherein each cost function is obtained according to the following equations:

$$M_{HL}(f(i,j)) = [\ f(i,j) - f(i,j-1)\ ]^2 + \alpha_{HL}\ [\ g(i,j)-f(i,j)\ ]^2$$

$$M_{HR}(f(i,j)) = [\ f(i,j) - f(i,j+1)\ ]^2 + \alpha_{HR}\ [\ g(i,j)-f(i,j)\ ]^2$$

$$M_{VT}(f(i,j)) = [\ f(i,j) - f(i-1,j)\ ]^2 + \alpha_{VT}\ [\ g(i,j)-f(i,j)\ ]^2$$

$$M_{VD}(f(i,j)) = [\ f(i,j) - f(i+1,j)\ ]^2 + \alpha_{VD}\ [\ g(i,j)-f(i,j)\ ]^2$$

$$M_T(f(i,j)) = [\ f(i,j) - f_{MC}(i,j)\ ]^2 + \alpha_T\ [\ g(i,j)-f(i,j)\ ]^2$$

where $f_{MC}(i,j)$ represents a motion compensated pixel, a_{HL}, a_{HR} , a_{VT}, a_{VD} and a_T represent a regulation parameter variable with respect to each cost function.

14. ~~15.~~ (Amended) The method of claim 13 ~~14~~, wherein the pixel f(i,j) which will be recovered is obtained based on the following equation when the pixel is

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included in an inter macro block,

$$f(i,j) = \frac{f(i,j-1) + f(i,j+1) + f(i-1,j) + f(i+1,j) + f_{MC}(i,j) + \alpha_{TOT}g(i,j)}{5 + \alpha_{TOT}}$$

where, $\alpha_{TOT} = \alpha_{HL} + \alpha_{HR} + \alpha_{VT} + \alpha_{VD} + \alpha_{T}$, and

A01 CON'S the pixel f(i,j) which will be recovered is obtained based on the following equation when the pixel is included in an intra macro block,

$$f(i,j) = \frac{f(i,j-1) + f(i,j+1) + f(i-1,j) + f(i+1,j) + \alpha_{TOT}g(i,j)}{4 + \alpha_{TOT}}$$

where $\alpha_{TOT} = \alpha_{HL} + \alpha_{HR} + \alpha_{VT} + \alpha_{VD}$.

16. ~~17~~. (Amended) The method of claim 11 ~~12~~, wherein in said step for obtaining the projected pixel P(F(u,v)), when (u,v)-th value F(u,v) of two-dimensional DCT coefficient of the original image is smaller than G(u,v)-*Qpl, the projected pixel P(F(u,v)) is mapped to G(u,v) - Qpl, and when the value F(u,v) is larger than G(u,v)+Qpl, the projected pixel P(F(u,v)) is mapped to G(u,v) + Qpl, otherwise, the projected pixel P(F(u,v)) is mapped to F(u,v), where G(u,v) represents (u,v)th value of the two-dimensional DCT coefficient of the compression image, and Qpl represents a quantizing maximum difference of the l-th macro block.*

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17. ~~18~~. (Amended) The method of claim 11 ~~12~~, further comprising the following steps which are repeatedly performed by k-times:

defining a cost function M(i,j) having a smoothing degree of an image and

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a reliability with respect to the original image by the unit of pixels in consideration with a directional characteristic between the pixels which will be recovered and the pixels neighboring the pixels which will be recovered;

adaptively searching a regularization parameter variable having a weight value of a reliability with respect to the original image from the cost function M(i,j); and

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obtaining a projected pixel P(F(u,v) using a projection method for mapping the recovering pixel in accordance with a range value of the pixel which will be recovered, for thereby finally obtaining a recovering image.

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18. ~~19~~. (Amended) In a method for recovering a compressed motion image for processing an original pixel f(i,j) based on a DCT by the unit of macro blocks of a MxM size, quantizing the DCT-processed coefficient, transmitting together with motion vector information, reversely quantizing and reversely DCT-processing the compressed pixel g(i,j) and recovering an image similar to the original image, a method for recovering a compressed motion picture, comprising the steps of:

defining a cost function M(i,j) having a smoothing degree of an image and a reliability with respect to an original image as a pixel unit in consideration of a directional characteristic between the pixels which will be recovered and the pixels neighboring the pixels which will be recovered;

adaptively searching a regularization parameter variable having a weight

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of a reliability with respect to the original image from the cost function M(i,j); and

obtaining a finally recovered image of a spatal region by obtaining a block DCT coefficient based on a block DCT and obtaining a projected pixel P(F(u,v)) by a projection method for mapping the pixels which will be recovered in a range value of the pixel for processing the block DCT coefficient, and performing a reverse DCT,

wherein said regularization parameter variable is a weight value with respect to reliability and is determined based on a difference between the original pixel and the compressed pixel and a difference value between the original pixel and the neighboring pixel.

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19. ~~20~~. (Amended) An apparatus for recovering a compressed motion picture, comprising:

an image decoding unit for outputting an information with respect to an image which will be recovered such as a decoded image, a quantized variable, a macro block type, and a motion type by decoding a coded image signal; and

a block process eliminating filter for defining a cost function based on a smoothing degree of an image and a reliability with respect to an original pixel in consideration of a directional characteristic between the neighboring pixel and the pixel which will be processed based on the pixels which will be recovered using an information with respect to the image which will be

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recovered inputted from the image decoding unit, adaptively searching a regularization parameter variable which provides a weight of a reliability with respect to the original image for each cost function, and recovering an original pixel using a projection method for mapping the pixels which will be recovered in accordance with a range value of the pixels which will be processed,

wherein said regularization parameter variable is a weight value with respect to reliability and is determined based on a difference between the original pixel and the compressed pixel and a difference value between the original pixel and the neighboring pixel.

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20. ~~21~~. (Amended) The apparatus of claim 19 ~~20~~, further comprising:

a DCT unit for performing a DCT with respect to an image recovered by the block process eliminating filter;

a vector projection unit for projecting a pixel which will be recovered in accordance with a pixel value after the DCT process is performed; and

an IDCT unit for performing a reverse DCT with respect to the image projected by the vector projection unit.

21 ~~22~~. (Amended) In a method for recovering a compressed motion image for processing an original pixel f(i,j) based on a DCT by the unit of macro blocks of a MxM size, quantizing the DCT-processed coefficient, transmitting together with motion vector information, reversely quantizing and reversely DCT-

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processing the compressed pixel g(i,j) and recovering an image similar to the original image, a method for recovering a compressed motion picture, comprising the steps of:

defining a cost function M(i,j) having a smoothing degree of an image and a reliability with respect to an original image as a pixel unit in consideration with a directional characteristic between the pixels which will be recovered and the pixels neighboring the pixels which will be recovered; and

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adaptively searching a regularization parameter variable having a weight of a reliability with respect to the original image from the cost function M(i,j) and a weight value of a smoothing degree of the original image,

wherein said regularization parameter variable is a weight value with respect to reliability and is determined based on a difference between the original pixel and the compressed pixel and a difference value between the ~~original pixel and the neighboring pixel.~~

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26. ~~27.~~ (Amended) An apparatus for recovering a compressed motion picture, comprising:

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an image decoding unit for outputting an information with respect to an image which will be recovered, a quantized variable, a macro block type, and a motion type by decoding a coded image signal; and

a block process eliminating filter for defining a cost function based on a smoothing degree of an image and a reliability with respect to an original pixel

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in consideration of a directional characteristic between a neighboring pixel and the pixel which will be processed based on the pixels which will be recovered using an information with respect to the image which will be recovered inputted from the image decoding unit, and adaptively searching a regularization parameter variable which has a weight of a reliability with respect to the original image from each cost function and a weight of a smoothing degree of the original image for thereby recovering an original pixel,

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wherein said regularization parameter variable is a weight value with respect to reliability and is determined based on a difference between the original pixel and the compressed pixel and a difference value between the original pixel and the neighboring pixel.

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